Exhibit D

HWG | HARRIS, WILTSHIRE & GRANNIS LLP

REDACTED - FOR PUBLIC INSPECTION

April 24, 2018

Via Email
RHC Review
Rural Health Care Program
Universal Service Administrative Company
2000 L Street, NW, Suite 200
Washington, DC 20036

Re: GCI Communication Corp. Response
HCP Customer/E-rate Customer Rate Comparison Letter

Dear RHC Review,

GCI Communication Corp. ("GCI") received information requests from the Rural Health Care ("RHC") Telecommunications Program ("Telecom Program") regarding certain 2017 funding requests of the Health Care Providers ("HCPs") for which GCI is a service provider. GCI provided responses in November and December 2017 to information requests related to 101 Funding Request Numbers ("FRNs"). On March 30, 2018, GCI provided supplemental information regarding those 101 FRNs and initial responses to information requests related to an additional 92 FRNs.[1]

Subsequently, GCI met with USAC and FCC staff to discuss the submission. During that meeting, GCI was asked about rates that GCI used in the E-rate program that are lower than GCI's rates in the RHC Telecom Program.[2] GCI explained that while it provides some services to E-rate

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1 *See* Letter from Jennifer P. Bagg, Counsel, GCI Commc'n Corp., to RHC Review, Rural Health Care Program, Universal Serv. Admin. Co. (Mar. 30, 2018) ("March 30 Letter").

2 Although the FCC has never provided guidance as to what constitutes "similar services" in the context of comparing commercial customer rates with rates charged to HCPs, staff in the Wireline Competition Bureau Telecommunications Access Policy Division suggested to GCI during this review process that GCI should utilize the pre-discounted rates of E-rate customers in its calculation of "the average of the rates actually being charged to commercial customers, other than health care providers, for identical or similar services provided by the telecommunications carrier providing the service in the rural area in which the health care provider is located." 47 C.F.R. § 54.607(a). It is within the context of this suggestion that the rates GCI charges for services to E-rate customers became relevant to GCI's rural rate calculation.

customers that are comparable to the services that GCI provides to HCPs, the vast majority of services that E-rate customers purchase are different.

This letter compares GCI's services provided to HCPs with the services typically provided to its E-rate customers, and the pricing of each. First, the letter describes the differences between the applications utilized by remote health care clinics participating in the RHC Program and those used by schools and libraries participating in the E-rate program, and how those differences can drive service choice. This section also provides examples of the different use cases that dictate service differentials. Second, this letter describes the services that GCI provides to HCPs and most E-rate customers over its three middle mile transport networks: Satellite, TERRA, and Non-TERRA Terrestrial. This section explains the differences between dedicated bandwidth services and best effort services, which underlie the different service choices made by HCPs and E-rate customers. Finally, based on feedback that GCI received in its meeting with USAC and the FCC, GCI pulled E-rate data from USAC's Open Data portal.[3] GCI reviewed its E-rate contracts to determine which middle mile transport service each E-rate customer purchased and listed that service in Column M of the attached spreadsheet.[4] In our March 30 Letter, as explained herein, only E-rate rates for symmetrical, dedicated Ethernet services were used as comparable rates for the RHC rural rate GCI calculated pursuant to the proposed alternative methodology.[5] This analysis of the Open Data shows that all other services provided to E-rate customers are not comparable to the services HCPs require to utilize healthcare applications.

We believe this additional information further clarifies that GCI has justified the rural rates that it has charged and proposes to charge HCPs under the Telecom Program. We urge that this review be completed quickly, as the delays in finalizing commitments are threatening GCI's liquidity, ability to draw additional financing under existing debt agreements, and ability to carry out capital projects during the coming, and short, Alaska construction season.[6]

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[3] *USAC Open Data,* UNIVERSAL SERV. ADMIN. CO., https://opendata.usac.org/ (last visited Apr. 20, 2018).

[4] The spreadsheet, which contains all downloaded Alaska data from Open Data, also notes which entities were not served by GCI. *See* Exhibit A, USAC Open Source Data – GCI E-rate.

[5] Utilizing rates for E-rate services in a rural rate calculation is not necessary to comply with Section 54.607(a). A comprehensive explanation of the methodology GCI utilized to justify its rates, as well as the alternative methodology that GCI ran at the suggestion of FCC staff, is available in GCI's March 30, 2018 letter. *See* March 30 Letter.

[6] The construction season in Alaska is a short three to five months.

I. HEALTHCARE APPLICATION DEMANDS AND USE CASES VERSUS EDUCATIONAL APPLICATION DEMANDS AND USE CASES

A. Healthcare Application Demands and Use Cases

HCPs that purchase data transport services from GCI utilize dedicated Ethernet, as compared with "best efforts" transmission services. As explained below, the applications that HCPs must use to provision remote health care can be most reliably supported through the use of dedicated service. The points to be connected and particular routes desired (*e.g.*, clinic to regional center or clinic to Anchorage) also affect service choice.

The most critical applications that HCPs use to provision remote medical care to their patients rely on the transmission of videos and images, and demand very high quality, with little pixilation, buffering, or other service interruption due to congestion. For video between a telemedicine cart in a clinic treatment room located in Remote Alaska[7] and a distant physician, treatment relies on high quality video and fast transmission; pixelated video and choppy sessions with buffering would interfere with treatment and endanger patients. Therefore, HCPs must have a fast connection with sufficient bandwidth to transmit the needed information in a timely and effective manner. To achieve this result with assurance, the HCP must have a purely dedicated connection or the traffic over that connection must be prioritized over other traffic on the network to avoid network congestion.

Prioritized or dedicated transport also facilitates reliable and accurate transmission of diagnostic images such as CT scans and X-rays. None of the Critical Access Hospitals[8] that GCI serves in Remote Alaska have in-house radiologists. Instead, the village clinic or regional center hospital transmit all diagnostic images to a distant physician. For instance, when stroke patients present in a remote emergency room, time is of the essence to treat within the "Golden Hour" that increases the likelihood of recovery. The Remote Alaska patient is given a CT scan, which is transmitted to a remote radiologist, and read remotely by a doctor who then provides a diagnosis and treatment plan. Slow transmission speeds, and excessive packet loss, jitter, or latency can affect the quality of the images and cause incomplete transmission and delay of the CT scan, which could lead to a delay in treatment or an improper diagnosis.

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[7] *See* March 30 Letter for a full description of the geographic regions GCI uses to determine its rural rates, as well as an explanation of the FCC's definition of "Remote Alaska" for USF-funding purposes.

[8] A Critical Access Hospital (CAH) is a Medicare participating hospitals that meets certain criteria established by the Alaska State Hospital and Nursing Association. A CAH may provide preventative services, long-term services and supports, diagnostic imaging, laboratory, critical care, and 24/7 emergency services. *See Critical Access Hospitals*, ALASKA DEPT. OF HEALTH AND SOC. SERVS., http://dhss.alaska.gov/dhcs/Pages/hflc/fac_cah.aspx (last visited Apr. 20, 2018).

In a real-life example, a patient living in the village of [redacted] a small island in the middle of the Bering Sea, entered a [redacted] with a gunshot wound. Through the use of video conference technology, a paraprofessional Community Health Aide[9] was able to transmit images to the regional hospital in Nome. The doctor in Nome quickly viewed the video and determined that the patient required a chest tube, which was inserted by the paraprofessional Community Health Aide, ultimately saving the patient's life. The ability for the remote physician to diagnose the patient and provide treatment instructions, was instrumental as this procedure was not within the paraprofessional Community Health Aide's scope of practice. Any pixilation or frozen video images during this procedure caused by slow transmission speeds, or excessive packet loss, jitter, or latency could have delayed the diagnosis and treatment of the patient (or caused a misdiagnosis) and could have had a life-threatening impact.

High quality video is also important for telepsychiatry, as near-real-time performance is critical to facilitate interaction between the patient and treating psychiatrist. For example, high resolution video imagery and frame refresh rates enable the remote psychiatrists to see changes in physical attributes such as pupil dilation and perspiration. Slow transmission speeds, or excessive packet loss, jitter, or latency can cause buffering or incomplete transmission of the video and interfere with the pace and nature of interaction between doctor and patient. This can result in a barrier to diagnosis and treatment, as well a frustrating session for a patient who may already be dealing with a mental health crisis.[10]

The slow transmission speeds, and increased packet loss, jitter, and latency that can result from best efforts service also can interfere with data transfer for electronic medical records and other support. HCPs use applications that are designed for high-speed, low latency networks common in the rest of the United States. In urban and suburban areas, these applications are provisioned over a local area network (LAN) or metro area network (MAN) with 100+ Mbps connections. However, due to the HCP's remote location, these applications must instead operate over a Wide Area Network (WAN), with significant distances between clinics and hospitals. For example, [redacted] hospital and clinics cover an area equivalent to the state of

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[9] There are approximately 550 Community Health Aides in over 170 rural Alaska villages within the Alaska Community Health Aide Program (CHAP) network. Community Health Aides work within the guidelines of the Alaska Community Health Aide/Practitioner Manual in assessing and referring members of their communities who seek medical care and consultation. Alaska Community Health Aides are the frontline of healthcare in their communities. *See* ALASKA CMTY. HEALTH AIDE PROGRAM, http://www.akchap.org/html/ home-page.html (last visited Apr. 20, 2018).

[10] There are more veterans per capita in Alaska than in any other state. Alaska has expanded mental health programs and access to health care for veterans greatly over the past decade. Julia O'Malley, *For Veterans, Alaska Offers Space and a Safety Net*, WASH. POST, Jan. 14, 2017, https://www.washingtonpost.com/national/for-veterans-alaska-offers-space-and-a-safety-net/2017/01/14/9cf6118a-d905-11e6-b8b2cb5164beba6b_story.html?utm_term=.c6781d1f5fec.

Illinois. Because the WAN covers greater distances, latency is inherently higher than the LAN/MAN settings for which the application was designed, especially when traversing geo-stationary satellites, making them even more sensitive to packet loss and jitter, as well as any added latency from a best efforts service.

In addition, health care records are data intensive and upload speeds are just as important as download speeds. For example, the State of Alaska Health Information Exchange (HIE) is a Software as a Service Clinical Data Repository Model that receives constant transactions from participating organizations. Without a robust (*i.e.*, high quality) connection, organizations have experienced problems transferring data to the HIE. In particular, laboratory results are susceptible to failed transactions, which can contribute to an incomplete medical history when patients present at a different medical facility.

It is important to recognize that if a HCP purchases service at the highest quality that it needs (such as dedicated), then it can prioritize its own applications. For example, the HCP itself could set certain packets (for applications such as real-time video and voice, or time sensitive medical records) for high priority, and other packets (for applications such as billing data) for lower priority. This allows the HCP to reallocate its bandwidth dynamically between higher and lower priority applications. This capability to achieve the necessary performance to support the highest priority services requires that the underlying transport service be dedicated.

Furthermore, HCPs require symmetrical network transport to enable bidirectional exchange of traffic for the transmission of imagery and video as described above, and to exchange health care information. For instance, two major healthcare organizations in Alaska, the [redacted] and [redacted] provide Electronic Medical Record (EMR) Systems to most of the state. [redacted] EMR is hosted in Kansas City, MO. As a result, all medical data within [redacted] traverses the networks in a bidirectional fashion. [redacted] supplies EMR to four hospitals in the state and, similarly, the data flows in a bidirectional manner for those who use their system. In addition, health organizations participating in Center for Medicare and Medicaid (CMS) programs must have off-site storage of data, which again necessitates a network capable of effective bidirectional data exchange.

Finally, HCPs require a high level of security. Accordingly, they frequently demand dedicated service so that they are the only parties utilizing their bandwidth, allowing them to control security to a greater degree.

B. Educational Applications Demand and Use Cases

Educational entities have a different use case for applications that range from high quality two-way communications, to communications that are from the distant teacher to the local students, to a predominantly Internet-based downloadable function. Educational applications are also not directly tied to safety of life and health in the same way as health care applications.

For education, some applications, particularly some video applications, support two-way interaction between teacher and student. These applications can be most reliably supported through use of a dedicated, symmetric service. For example, a discussion session between a student/classroom and remote teacher is less effective if the video and audio in either direction are disrupted by pixilation or delay. A school district may elect to purchase dedicated bandwidth to support this use case. For example, [redacted] has significant distance learning capabilities with five studios for remote teaching in use all day, every school day. Therefore, [redacted] purchases dedicated bandwidth.

Other educational application use cases are largely Internet-based and can be delivered adequately over a best effort/shared platform. Some types of distance learning that utilize video transmission can use best efforts services, particularly if primarily in a one-to-many download stream. While slow transmission speeds, and excessive packet loss, jitter, or latency can create frustration for the lecturer and students, small amounts of pixilation and delay are not life-critical or, in some settings, overly disruptive to the educational process. The division between what can be supported with best efforts and what requires a dedicated connection in the educational context is not a bright line, and thus is part of what schools examine when evaluating competing bids. For instance, not all school districts use distance learning on a regular basis.

Many educational applications require much greater download capacity than upload capacity, which means symmetrical bandwidth is not necessary, and the use patterns for a typical school are consumption-based with much heavier use of bandwidth being downloaded from the Internet than being uploaded to the Internet. This is because the user base in a school is much greater as a result of the number of students and devices that are pulling data from the Internet rather than pushing data. This is in contrast to a medical setting where, as explained above, data is uploaded from a clinic to a hospital, as is the case with medical records, telehealth/video, images, and administrative functions. As discussed further below, these asymmetric bandwidth demands can be more efficiently provisioned with best efforts services.

As with healthcare, an educational institution can purchase service at the highest quality that it needs (such as dedicated), and then prioritize its own applications over that connection, including through oversubscription. For example, the school itself could set certain packets (such as real-time video and voice) for high priority, and other packets (such as administrative data) for lower priority. This allows the school district to reallocate its bandwidth dynamically between higher and lower priority applications.

II. GCI MIDDLE MILE TRANSPORT SERVICES AVAILABLE TO HEALTH CARE PROVIDERS AND E-RATE CUSTOMERS

GCI provides middle mile transmission service to customers throughout Alaska over three network systems: (1) GCI's microwave network ("TERRA"), (2) a system of satellites ("Satellite"), and (3) GCI's terrestrial network that is not on the TERRA network ("Non-TERRA Terrestrial"). In some instances, GCI provides service over a combination of TERRA and Satellite, particularly when only a portion of an HCP's locations can be served from the TERRA network.

For each of its three middle mile transmission networks, TERRA, Satellite, and Non-TERRA Terrestrial, GCI offers both dedicated and best efforts services that customers can choose depending on their needs and system designs, as well as whether the customer wants to manage its own prioritization or rely on different grades of service within GCI's products.

A. TERRA

GCI provisions middle mile data transport services over its TERRA microwave network to HCPs and E-rate customers using two delivery methods: (1) dedicated service ("TERRA Dedicated"), and (2) best efforts, shared service ("TERRA Best Efforts"). GCI also provisions a combined service package, consisting of a bundle of TERRA Dedicated and TERRA Best Efforts ("TERRA Priority IP").

1. TERRA Dedicated Service

GCI's TERRA Service provides full symmetric bandwidth to customers without oversubscription. All traffic on this service is priority traffic, meaning that the traffic cannot be preempted by lower priority traffic.

The service levels for TERRA Dedicated service are summarized in GCI's posted TERRA rate tables.[11] TERRA Dedicated service is designed to provide point-to-point or point-to-multi-point connectivity. The service is designed for 99.95% availability or no greater than 1296 seconds of outage per month. The posted service levels for TERRA Dedicated are as follows: round trip latency not to exceed 50 milliseconds (except the network is designed to limit round trip delay to not exceed 700 milliseconds during times of satellite restoration), packet loss not to exceed 0.1% averaged over 30 days, and jitter not to exceed 20 milliseconds on average over 30 days. Averages are calculated over the period of thirty days measured from TERRA Point of Presence ("PoP") to TERRA PoP using ITU-T Y.1731 standard tests.

2. TERRA Best Efforts Service (DIAS)

GCI also provides a best efforts, shared Ethernet service over TERRA, also referred to as Dedicated Internet Access Service (DIAS) or TERRA Best Efforts. TERRA Best Efforts is available in capacities from 0.5 Mbps to 50 Mbps, and is available in 0.5 Mbps increments.

TERRA Best Efforts rates are not publicly posted; however, GCI maintains an internal rate table and term sheet for TERRA DIAS.[12] Customers may purchase more than one TERRA Best Efforts service in a community (*e.g.*, to serve multiple facilities) but may not exceed an aggregate purchase of more than [redacted] in King Salmon, Dillingham, Bethel, Nome and Kotzebue or [redacted]

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[11] GCI's current and historical TERRA Product Pricing Descriptions were submitted with the March 30 Letter. GCI's current TERRA posting is available at https://www.gci.com/-/media/files/gci/regulatory/gci_terra_posting_effective_070117.pdf.

[12] The current rate table for TERRA DIAS is attached as Exhibit B.

Mbps per community in all other TERRA-served markets. Each TERRA Best Efforts service is associated with a single GCI PoP. TERRA Best Efforts consists of one port at a single TERRA served community and IP transport to GCI's core in Anchorage. TERRA Best Efforts traffic cannot be routed between GCI PoPs without transiting GCI's core hub in Anchorage. (Because TERRA services are not distance-sensitive, as explained below, this does not increase charges.)

TERRA Best Efforts is an oversubscribed service. It is designed to provide an average service availability equal to or greater than [redacted] measured over a period of 30 days. The service levels for TERRA Best Efforts are as follows: round trip latency not to exceed 100 milliseconds averaged over a period of 30 days, packet loss not to exceed [redacted] averaged over a period of 30 days, and jitter not to exceed [redacted] milliseconds averaged over a period of 30 days. Latency, packet loss, and jitter measurements are taken between the service delivery PoP and GCI's public internet core in Anchorage. GCI uses standard ITU-T Y.1731 testing. Oversubscription of DIAS is variable due to changes in customer behavior as well as time of day. However, the network is designed to provide a consistent user experience and targets a [redacted] oversubscription.

The following chart provides a side-by-side comparison of TERRA Dedicated and TERRA Best Efforts (DIAS) service levels:

	TERRA Dedicated	TERRA Best Efforts (DIAS)
Service Availability	Equal to or greater than 99.95% availability or no greater than 1296 seconds of outage per month	Equal to or greater than [redacted] measured over a period of 30 days
Round Trip Latency	Not to exceed 50 milliseconds averaged over a period of 30 days (except the network is designed to limit round trip delay to not exceed 700 milliseconds during times of satellite restoration)	Not to exceed [redacted] milliseconds averaged over a period of 30 days (except the network is designed to limit round trip delay to not exceed [redacted] milliseconds during times of satellite restoration)
Packet Loss	Not to exceed 0.1% averaged over 30 days	Not to exceed [redacted] averaged over 30 days
Jitter	Not to exceed 20 milliseconds averaged over 30 days	Not to exceed [redacted] milliseconds averaged over 30 days

TERRA Priority IP combines TERRA Dedicated and TERRA Best Efforts in a bundled arrangement. This service requires customer coordination, as the customer must mark packets for prioritization. Each portion of the bundled service is priced and operates in the same way as the equivalent standalone service.

3. TERRA Dedicated and Best Efforts Pricing

TERRA pricing is postalized, within two broad categories: Regional Hubs to Anchorage, and connections between all other locations. No additional usage charges apply. For the purposes of this discussion of middle-mile transport pricing, we are ignoring local loops, which are separately priced. There is a separate charge for local loop or other tail circuit facilities needed to connect the TERRA location PoP to the premises of the customer.

TERRA Dedicated pricing is determined in accordance with the posted TERRA pricing tables as follows:[13] (a) Totaling all of the hub capacity in Tables 1 and 2 ordered in increments of 1 Mbps or greater under a single contract and applying the hub pricing rate in each Table based on the aggregate commitment (ports less than 1 Mbps receive only term discounts and are not included in calculating capacity discounts); and (b) Totaling all of the edge capacity in Tables 1 and 2 ordered in increments of 1 Mbps or greater under a single contract and applying the edge pricing rate in each Table based on the aggregate commitment (ports less than 1 Mbps receive only term discounts and are not included in calculating capacity discounts).

For the purposes of TERRA Dedicated, Critical Community Facilities ("CCF") may elect to receive a 25% discount off the TERRA published month-to-month rates in lieu of the standard term and volume discounts available in the rate tables. CCFs are public facilities that provide community services essential for supporting the safety, health, and wellbeing of residents. CCFs include, but are not limited to, emergency response, public safety, hospitals, health clinics, libraries, and schools.

TERRA Best Efforts pricing is based on an internal pricing guide that is not publicly available. The pricing changes from time to time. The current TERRA Best Efforts (DIAS) pricing is as follows:

	Month to Month	1 Year Term	3 Year Term	5 Year Term
Regional Centers (King Salmon, Dillingham, Bethel, Nome and Kotzebue)	[redacted]	[redacted]	[redacted]	[redacted]
Other TERRA Service Locations	[redacted]	[redacted]	[redacted]	[redacted]

[13] *See supra* n. 11.

B. SATELLITE

GCI provisions middle mile data transport services over satellites to HCPs and E-rate customers using two delivery methods: (1) dedicated service ("Satellite Dedicated"), and (2) best efforts, shared service hubbed in Anchorage ("Satellite Best Efforts").

1. Satellite Dedicated Service

GCI provides a dedicated, private line service over satellite that provides symmetric bandwidth to customers without oversubscription. Satellite Dedicated service provides the customer with a point-to-point dedicated circuit. Because the circuit is entirely dedicated to that customer, there is no other traffic sharing that bandwidth with the customer and, therefore, no traffic to prioritize (unless the customer prioritizes its own traffic within the circuit).

Satellite Dedicated service is available between any two satellite-served points to establish a direct connection. Unlike Satellite Best Efforts (described below), Satellite Dedicated service can be provisioned without hubbing through Anchorage, and thus can be used directly to connect a village to a regional center (*i.e.*, with a single "hop"). All Satellite Dedicated service is provisioned using dedicated transponder capacity except when the service is being used as a disaster recovery circuit.

As sold to both HCPs and E-rate customers, Satellite Dedicated service does not have formal SLAs, but does have commitments that the network be available to support the necessary applications, as specified on Form 465 (for HCPs) or Form 470 (for Education). To support high-quality, two-way interactive video, a packet loss of less than 0.1% and jitter of less than 40 milliseconds is required. A user should not observe these types of effects with Satellite Dedicated service. While end user equipment is built to tolerate higher levels of packet loss and jitter, in GCI's experience, performance over that equipment degrades as packet loss and jitter exceed, respectively, the 0.1% and 40 milliseconds levels. Dedicated service can assure HCPs of performance at these levels regardless of the simultaneous transmission of data by other customers, including by other HCPs that may also be transmitting high quality video, because the dedicated bandwidth is not shared. Were a number of HCPs to use a shared bandwidth satellite service, they could face a greater risk that their simultaneous bandwidth needs could create service quality issues.

2. Satellite Best Efforts Service

In contrast to dedicated service, GCI provides a best efforts connection over satellite that utilizes transponder bandwidth that is pooled/shared with other customers. This service is provided using iDirect technology with a central hub in Anchorage, through which all traffic must pass. GCI does not provide a Satellite Best Efforts service into its regional hubs, as generally those hubs have connections to Anchorage via TERRA or another terrestrial network. This traffic can be preempted during times of network congestion, which can affect transmission speeds and cause greater packet loss, jitter, and latency. This service is referred to as Satellite "Dedicated Internet Access Service" (DIAS) or "Best Efforts."

The iDirect service is best suited for asymmetric traffic. Generally, the top speed on iDirect is 25 Mbps download with 10 Mbps upload and in only rare instances is a symmetric service offered on iDirect. Because all iDirect traffic must flow through a central hub, and the only hub GCI has deployed is in Anchorage due to the costs of deploying regional hubs as compared to regional demand, the iDirect service is not well suited for village-to-village or village-to-regional center traffic; such traffic would be subject to two satellite hops (one from the village to Anchorage and one from Anchorage to the regional center or other village), which would increase latency to over one second. Because of this, GCI generally does not offer Satellite Best Efforts from a village to its regional hubs, including Nome, Bethel, Dillingham, Kotzebue, and King Salmon, and, therefore, a Satellite Dedicated service connecting the village and the regional hub must be obtained, which provides a better overall network experience. Nome, Bethel, Dillingham, Kotzebue, and King Salmon all connect to Anchorage via TERRA, so no satellite link is necessary for that route.[14]

For Satellite Best Efforts, the packet loss, jitter, and latency can vary as demand on the transponder varies. For Satellite Best Efforts to be suitable, the applications the customer seeks to run must be able to tolerate greater packet loss and jitter. Packet loss can range up to [redacted] or more, but generally operates in the range of [redacted]. Jitter can vary by as much as [redacted] that of Satellite Dedicated Service, and sessions can break down as jitter exceeds [redacted] milliseconds. GCI generally targets to keep jitter below [redacted] milliseconds. Latency for a best efforts satellite service can spike to [redacted] to [redacted] milliseconds. GCI's buffers will not hold more than [redacted] milliseconds. GCI Engineering attempts to control these items by monitoring the capacity of the shared-platform. However, it is not always possible to completely control them. When these shared-platform circuits become congested (due to the load offered by all of the customers on that transponder), then packet loss, jitter, and latency all increase. Oversubscription of Satellite Best Efforts is variable due to changes in customer behavior as well as time of day; however the network is designed to provide a consistent user experience (targeting Internet use). Depending on use, Satellite Best Efforts operates from a [redacted] oversubscription rate.

3. Satellite Dedicated and Best Efforts Pricing

Rates for satellite-based services are postalized, *i.e.*, they do not vary according to distance or geographic location, but do vary with competitive bids. The primary driver of the price differential between Satellite Dedicated and Satellite Best Efforts services is the amount of transponder space consumed to maintain the service. Satellite Dedicated service, which reserves transponder space in order to assure higher quality levels, costs more than Satellite Best Efforts service, in which the cost of the transponder space can be spread over a greater number of users.

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[14] The one exception among the principal regional centers is Barrow, to which GCI has a dedicated connection via satellite that is shared by the members of that community.

C. NON-TERRA TERRESTRIAL

GCI provisions shared middle mile data transport services over its Non-TERRA Terrestrial network to HCPs and E-rate customers. As discussed in the March 30 Letter, there are no Non-TERRA Terrestrial E-rate purchases that are comparable to the dedicated services being procured by Non-TERRA Terrestrial RHC customers. The grade of service the customer requires is determined by the types of applications that need to be supported. We previously provided information on the average per Mbps rates of commercial sales of dedicated services that are comparable to the services purchased by RHC customers.

Terrestrial best efforts services outside of the TERRA service area are either DIAS services provided over a fiber or microwave network, or hybrid fiber-coax-based services. These are all shared bandwidth services, with oversubscription. For DIAS services, when governed by an SLA, the key service quality parameters are: service availability, [redacted]; and latency of less than [redacted] milliseconds on GCI's core network (defined as Anchorage-Fairbanks-Juneau-Seattle). As with Satellite Best Efforts services, Non-TERRA Terrestrial best efforts services experience jitter and packet loss that vary with congestion. Generally, GCI tries to keep jitter under [redacted] milliseconds. and packet loss under [redacted], and thus best efforts service will not be suitable for customer applications that require more stringent performance. For the HFC services, these are GCI's standard asymmetric and oversubscribed cable broadband service offerings that it offers to residential and business customers generally.

As with TERRA, Non-TERRA Terrestrial Best Efforts services have a lower price than Non-TERRA Terrestrial Dedicated Services because the lower service levels and use of oversubscription do not allow the best efforts customer to consume peak period bandwidth to the same extent as a dedicated services customer.

III. USAC Open Data Analysis

During discussions with staff in the Wireline Competition Bureau Telecommunications Access Policy Division, the staff informed GCI that it had pulled data from USAC's Open Data website to review the services that GCI provides under the E-rate program and the rates associated with such services. The staff expressed concern that the data appear to convey that GCI provides symmetrical Ethernet to E-rate customers for much less than the dedicated, symmetrical Ethernet service that it provides to HCPs, and questioned why such rates were not included in its rural rate calculation pursuant to Section 54.607(a), 47 C.F.R. §54.607(a). As GCI has demonstrated herein, rates differ for services provided to HCPs and E-rate customers when those services are different.

GCI pulled the Alaska data that it believes are the same as the staff pulled. The attached spreadsheet contains the open source data that GCI pulled.[15] As a preliminary matter, GCI discovered that there are instances in the data where the information input by the education customer is inaccurate, such that the Function Type and Product Type do not align with the service that GCI is providing to the customers. One likely cause for the discrepancies is the E-rate data

[15] *See* Exhibit A: USAC Open Source Data – GCI E-rate.

tool that customers use to input information, which operates via drop-down menus. The drop-down menu may not contain the appropriate service, or the customer may select the wrong service. In addition, GCI discovered that many upload and download speeds were incorrect. For example, some Satellite Best Efforts services were listed as a symmetrical [redacted] Mbps or [redacted] Mbps, but, as explained above, the maximum Satellite Best Efforts service as provisioned through the iDirect system generally is [redacted] Mbps down and [redacted] Mbps up.

As a non-exhaustive set of further examples, GCI identified the following errors in the data:

- GCI provides the [redacted] with TERRA Priority IP. In FY2017 and FY2018, the customer listed the [redacted] but for FY2016, they incorrectly listed the service as [redacted]
- GCI provides [redacted] with a 10 Mbps TERRA Priority IP service (6 Normal + 4 Priority). For FY2018, the customer listed the download speed as 10 Mbps and the upload speed as 4 Mbps.
- GCI provides [redacted] with a [redacted]. The customer listed the product type as [redacted]
- [redacted] listed all the services as [redacted]. Also, the customer identified upload and download speeds of [redacted]

GCI reviewed the data in detail and can confirm that the E-rate services that it used in its rural rate calculation (under the alternative methodology) are the only services that are comparable to the services that HCPs purchase. As explained above, HCPs require middle mile data transport services that are dedicated and symmetrical for health applications and uses, and, while some schools require dedicated, symmetrical service, a best efforts service can be sufficient for many applications used by E-rate customers.

GCI inserted "Column M" into the spreadsheet and populated that column with an identifier for the type of middle mile transport service that the customer purchases. The only middle mile data transport services sold to educational customers that GCI used for its rural rate calculations are TERRA Dedicated and Satellite Dedicated with symmetric bandwidth. As discussed above, while GCI sells Non-TERRA Dedicated service to HCPs, it does not sell these services to any E-rate customers.

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GCI reiterates its request to begin releasing funding commitment letters immediately. GCI's rate justifications meet all requirements and are further supported by the supplemental information it has provided. If USAC or the FCC continue to question certain funding requests, they should not hold up the funding of rates that have been fully and indisputably justified.

Should you have further questions or require additional explanation or documentation, please contact me immediately so that I can provide further assistance to resolve this matter.

Sincerely,

Jennifer P. Bagg
Counsel to GCI Communication Corp

Attachments

cc: Trent Harkrader
Ryan Palmer
Elizabeth Drogula
Preston Wise
Soumitra Das

USAC Open Source GCI E-Rate Data Redacted in Entirety

TERRA DIAS Product and Pricing Redacted in Entirety